Introduction to Pharmacoeconomics (Phar 551)

LIDETA Health Science Business and College

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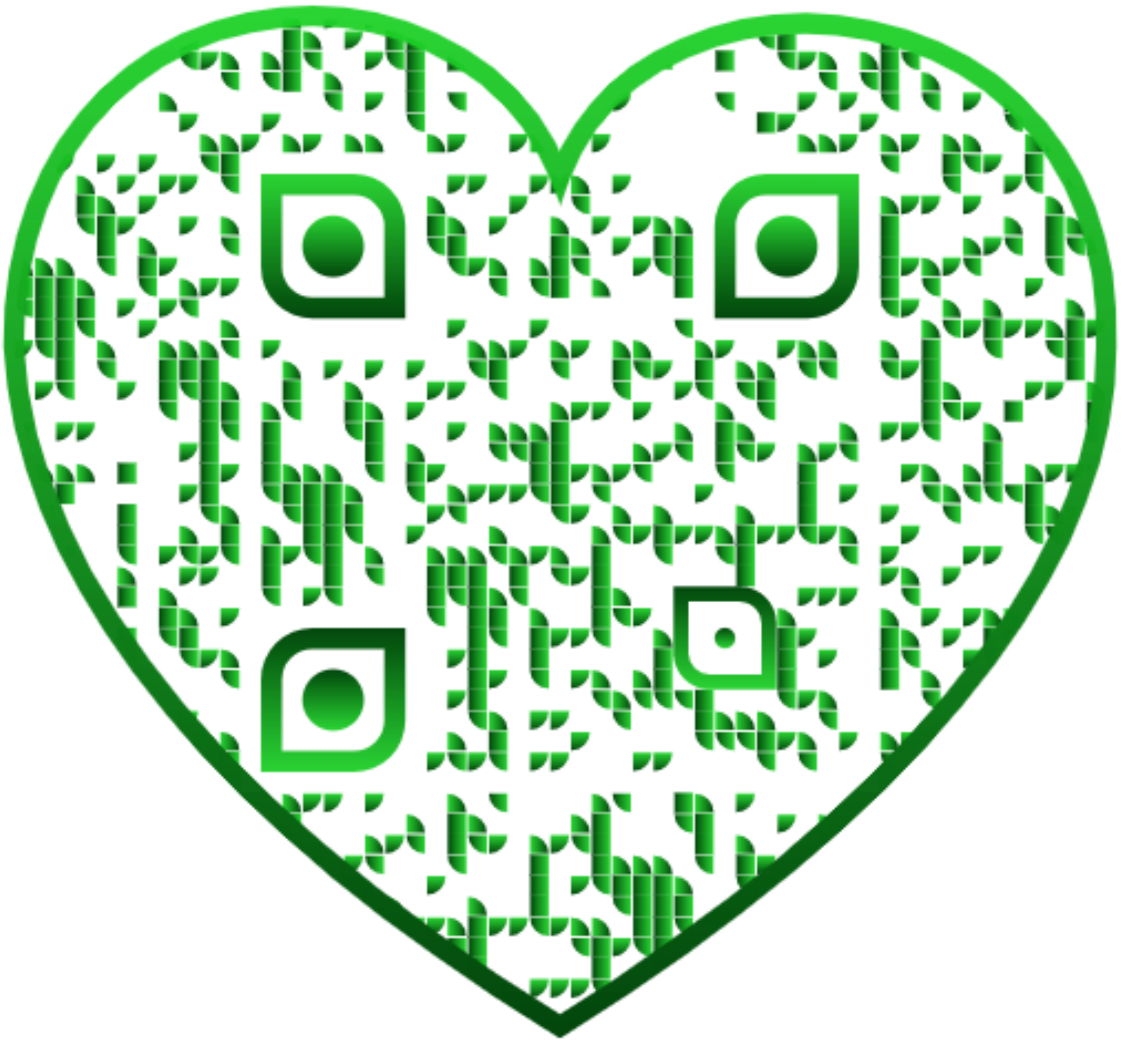


Chapter One

Introduction to Principles of Economics

Learning objectives

Upon completion of this chapter, you should be able to:

- Define the main concepts of economics and economy, value, worth, utility, etc.
- Discuss the concept of demand, supply and equilibrium
- Discuss the nature of market structure
- Discuss healthcare and market

Contents of the chapter

1.1. Definition of economics

1.2. Concept of demand, supply and equilibrium

1.3. Markets and Market Failure

1.4. Society and Scarce Resources

1.5. Principles of Economics

1.1. Definition of economics

What is Economics?

- The word economy comes from a Greek word oikonomos, which means for “one who manages household.”
- It’s the careful use of money, resources, means of production.
- A country's economy is connected with things like how many goods and services are produced and how money people can spend on these things.
- It is the study of how people allocate their limited resources in an attempt to satisfy their unlimited wants.

Economics …defined

- **Economics** is the study of how society end up choosing to employ scarce resources that could have alternative uses" (Samuelson)
- Economists therefore study how people make decisions: how much they work, what they buy, how much they save, and how they invest their savings.
- Economists also study how people interact with one another
- *it involves numerous transactions that create two circular flows (money moves in one direction while goods and services move in the opposite direction)*

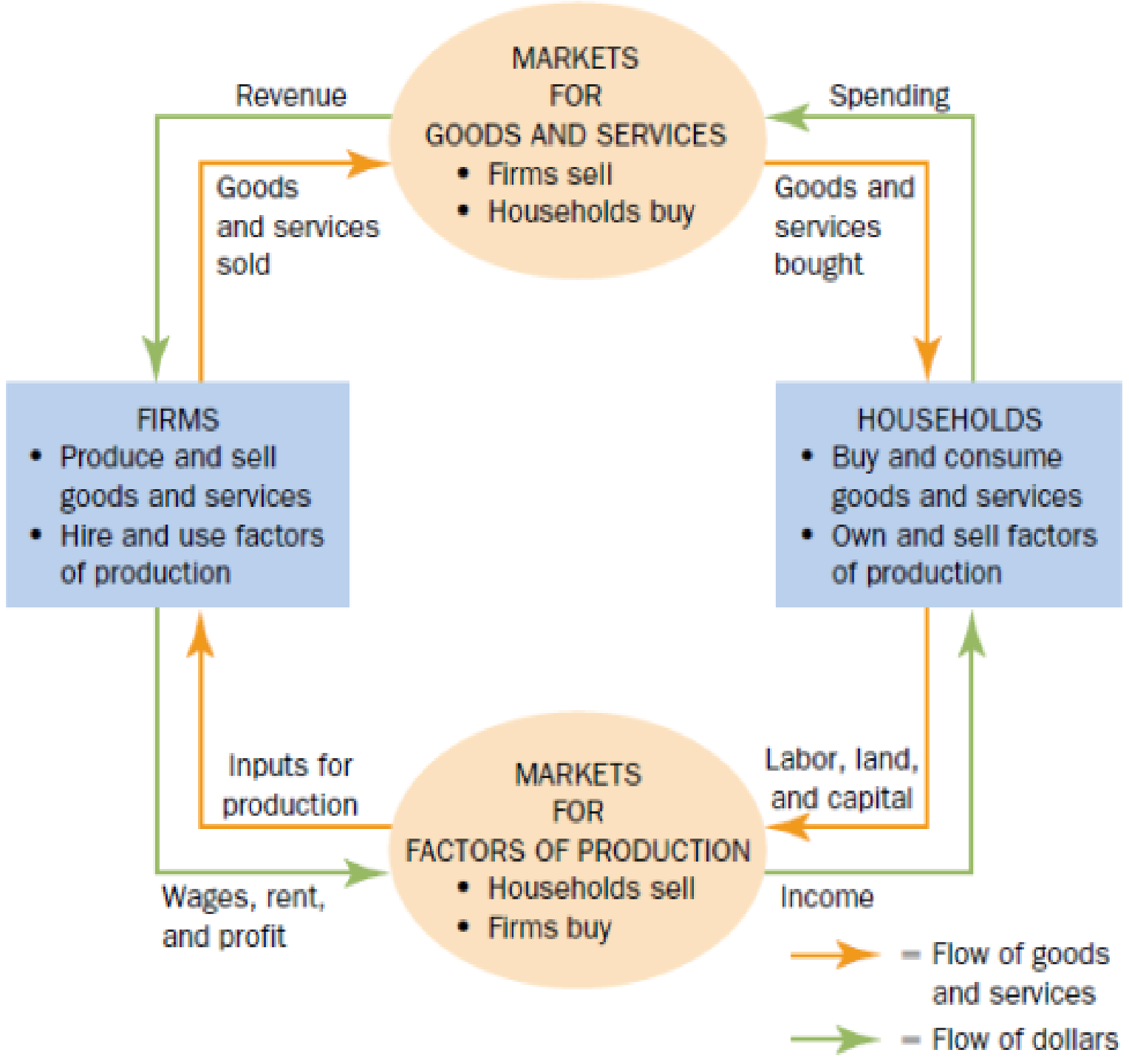
Economics…

- It is also the study of scarcity and choice, finally helps how to use scarce or limited resource.
- The subject matter of economics lies on the production, distribution and consumption of economic goods.
- It's a study of how people, businesses, societies, or nations deal with scarcity.
- **A social science** dealing **efficient use** of **scarce resources** to achieve **satisfaction** of **economic wants**

Goal Economics

- Steady Economic Growth
- Low Unemployment (Full Employment)
- Low Inflation (price stability)
- Favorable Balance of Payment
- Economic Efficiency
- Fair Income Distribution

The Circular Flow

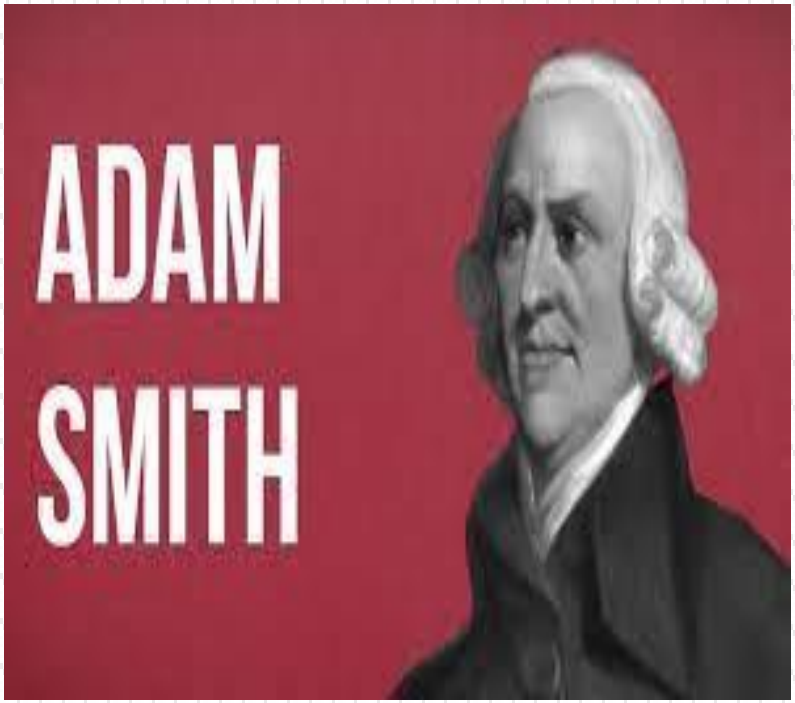


Economics defined….

- the process or system by which goods and services are produced, sold, and bought in a country or region
  – it includes everything related to the production and consumption of goods and services
  – it involves numerous transactions that create two circular flows (money moves in one direction while goods and services move in the opposite direction)
- The outer set of arrows (green) shows the flow of dollars, and the inner set of arrows (red) shows the corresponding flow of goods and services

Economists…ADAM SMITH

- Adam Smith (1723 – 1790): Father of Modern Economics.
- Wrote the first and most important books on the subject of economics, An Inquiry into the Nature and Causes of the Wealth of Nations (1776)
- Smith believed in "free market – where consumers may buy what they like and producers may produce what they like, with no government interference



Concepts and Definitions

Scarcity

Scarcity : shortage of resources (land, labor, capital, entrepreneurship) that are needed to produce goods and services required to satisfy unlimited human wants

- scarcity has two wings – limited resources and unlimited needs and wants
- choices have to be made on how to use these limited resources.
- Because of scarcity of resources, all human needs and wants can't be satisfied at once. Therefore a decision has to be made so as to determine which wants should be satisfied first and which ones later
- Health care resources available for medical procedures, including pharmaceuticals, are scarce and require choices to be made regarding the allocation of these resources to satisfy the healthcare needs of the society
- Scarcity is a universal problem for societies – it is not limited to poor countries.

Need, Want, Demand

- **NEEDS**: are the basic necessities that a person must have in order to survive e.g. food, water, shelter and clothing
- **WANTS**: are the desire that people have e.g. things that people would like to have, such as bigger homes. The desire for goods or services that are not essential to sustain life….wants are a step ahead of needs
- **Demand**: It refers to the consumer's desire and willingness to buy a product or service at a given period or over time.
- **Are healthcare services needs or wants?**

Opportunity Cost

Opportunity Cost: Is the value of the next best opportunity given up in order to enjoy a particular good or service. potential benefits an individual, investor, business misses out when choosing one alternative over another.

- Eg. A student spends 3hrs and 50 birr at the movies the night before an exam.
  The opportunity cost is time spent studying and that money to spend on something else.

Utility

- Utility is the amount of satisfaction to be obtained from a good or service at a particular time or expected to be derived from the consumption of goods and services.
- Example: the utility of orange is the satisfaction derived from consuming it at a particular time

There are some points to note:

- Whether a good is useful or not, so far it gives satisfaction to the consumer, it has utility for a person.
- If a consumer wants something whether it is good or bad for him has utility for him.
- It may satisfy socially immoral wants E.g. Drug, alcoholism, Tobacco, etc.
- Utility of a good varies from person to person and it varies for the same person from time to time.

Value

- *Value* is a measure of the benefit provided by a good or service to an *economic* agent.
- It is generally measured relative to units of currency, and the interpretation.
- **Value** is the strengths **and** the contributions you will bring to the position **and** to the organization
- **For example**, if a person has an apple, then the economic value of that apple is the benefit that they receive from eating the apple

Value….

Economic value

- **It** is a measure of the benefit provided by a good or service to an economic agent.
- It is generally measured relative to units of currency, and the interpretation is therefore "what is the maximum amount of money a specific actor is willing and able to pay for the good or service"?
- Economic value is *not* the same as market price

Value Cont....

- Economic value is the maximum amount of money an agent will pay for a good or service.
- The economic value of an item changes as the price or quality of similar or associated items changes.
- Producers use economic value to set prices for their products taking into consideration tangible and intangible factors such as brand name.

Paradox of value

- Paradox of value: the things we have the most of, we tend to value least
  - Reason of the paradox of value: scarcity of resources
  - Diamond Vs water- we give higher monetary value to diamonds because there is less of them laying around. We give water less value because there is more abundance of it
  - Scarcity is required for value, but scarcity alone is not enough to create value

Worth

- In economics, worth is related to the theory of capital.
- It doesn't make sense to talk about the *worth* of a service or other forms of labor, because we can't accumulate a labor, expecting to sell it later.
- Economics predicts that we will sell something only when its worth in the market exceeds its value to us.
- **worth** is the amount of money you expect to receive for your level of training **and** experience

Worth continued…

- An expected selling price of some form of property
- When we talk about worth, we are taking the viewpoint of the owner, and speculating about a possible sale, or what it might cost to replace our property.
- Worth is a long-term perspective.

Cost Vs Price

Cost: is the total expense incurred so as to produce & deliver a given product.

Price: is the adjusted cost of product for the purpose of sale.

Cost vs Price: Price is the money given to the seller for the product while cost involves the seller's money to produce values.

Cost Vs Price example

- Cost Vs Price
- E.g.. Amoxicillin 250mg/5ml suspension
  - ✓Active ingredients= 2 birr
  - ✓Expiates = 1 birr
  - ✓Processing = 5 birr
  - ✓Packaging = 1 birr
  - ✓Handling = 1 birr
  - ✓Others = 2 birr
  - ✓One bottle to be sold with = 15 birr
- So, cost of 1 bottle of Amoxicillin suspension is_____
- Price of 1 bottle of Amoxicillin suspension is_____

Goods and services

- Goods are the concrete, physical products we produce/manufacture: – E.g. furniture, automobiles, drugs, medical equipment, etc..
- Services are the activities we engage in and sell to others
  – E.g. medical services such as physician consultation services, nursing care services.
  - clinical pharmacy services such as, diabetes mgt service, asthma mgt service, pharmacokinetic monitoring service, osteoporosis mgt clinic, and HIV/AIDS mgt clinic, etc

Economic and free goods

- Economic goods: goods that are scarce and have economic values

- Free goods: goods that have no scarcity and exist in sufficient quantities to satisfy everyone's wants such as air, sunshine,…

– in which goods are economists interested?

Resources

- Resources: are the inputs necessary for the production of goods and services to meet our needs and wants
- Categorized in to four groups:
  - Labor/human resources
  - Capital resources
  - Land/natural resources and
  - Entrepreneurial skill
- These fours are also called factors of production

What is Health Economics?

Health Economics:

- The **application** of theories, concepts and techniques of economics to **health system**
- **Health system**: Set of interrelated elements having an objective of the transformation of resources (inputs) into a health status (final output) through the production of health care services (intermediate output)
- A **health system** (HCS) consists of all **organizations**, institutions, resources and actions whose primary intent is to promote, restore or maintain **health**.(WHO)

Health Economics …

It is thus concerned with such matters as:

- The allocation of resources to various health promoting activities
- The quantity of resources used in health delivery
- The efficiency with which resources are allocated and used for health purposes
- The effect of preventive, curative and rehabilitative health services on individuals and society
- The organization and funding for health institutions

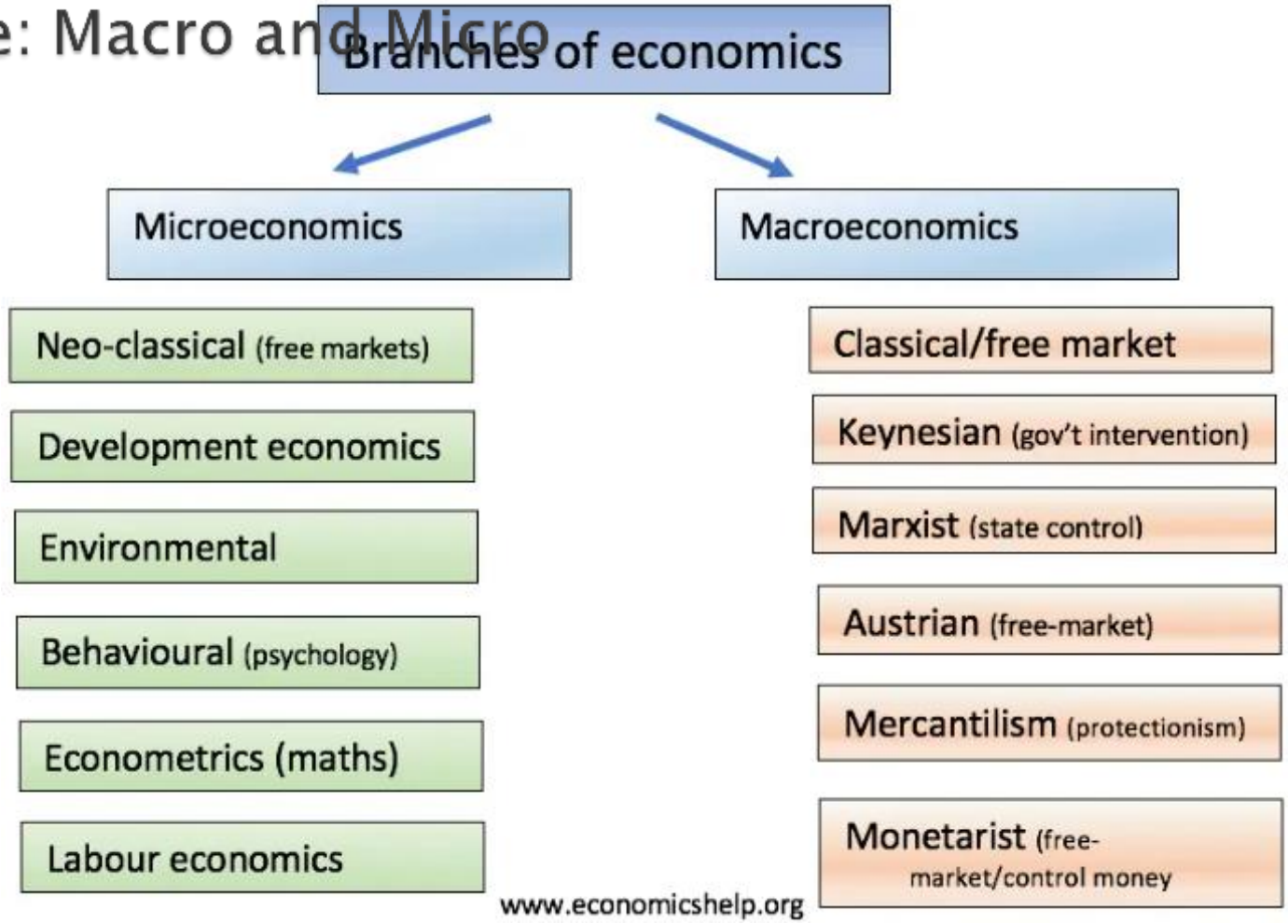
The ‘Health Economic’ problem

- Unlimited healthcare “wants” with rapid growth in health expenditure.
- Insufficient health sector resources.
- Choosing between ‘wants’ we can ‘afford’ given our resource ‘budget’.
- Unpredictability – eg. COVID19

Classification of economics

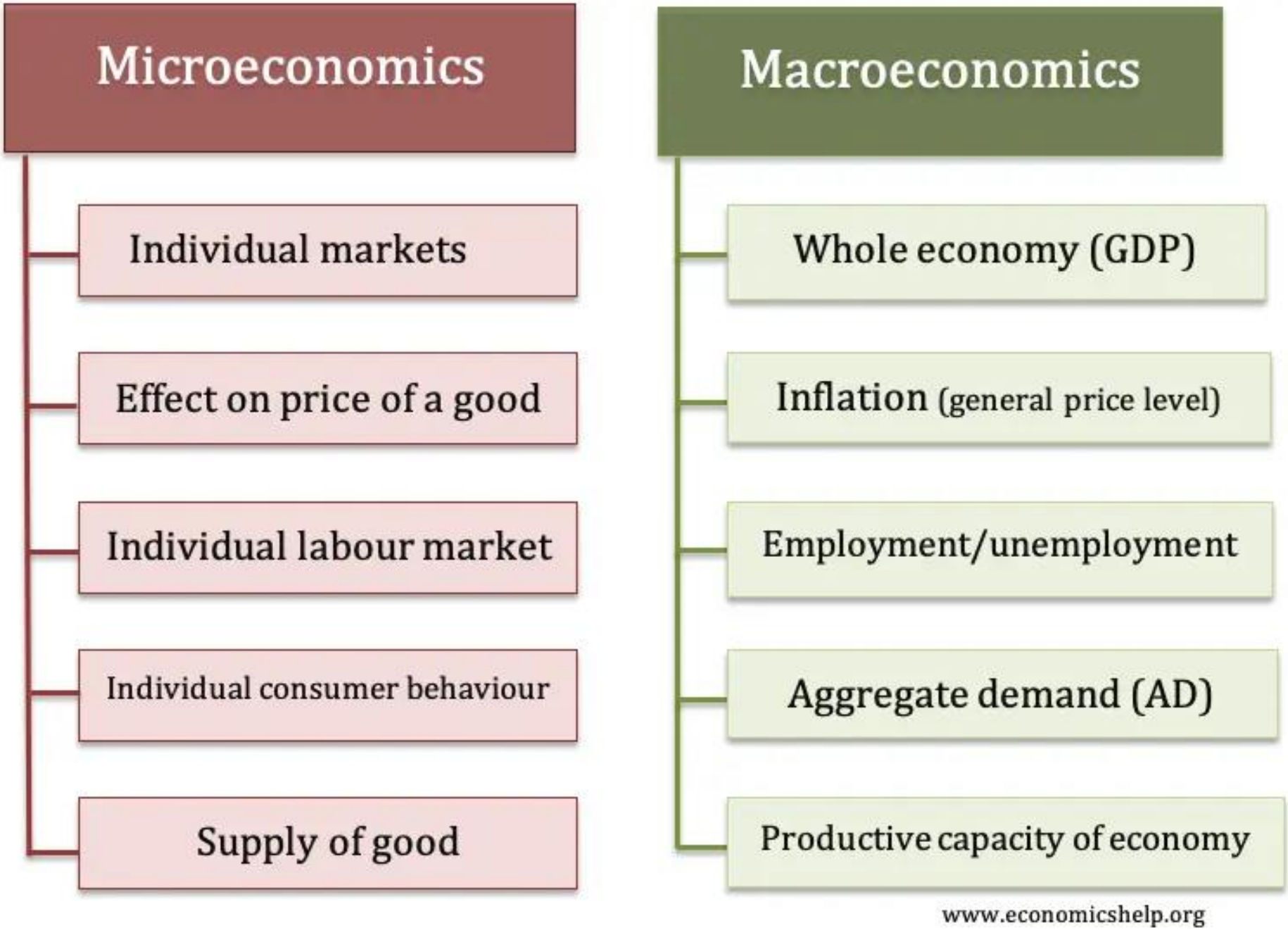
Application: Agroec, health eco,....

Scope: Macro and Micro

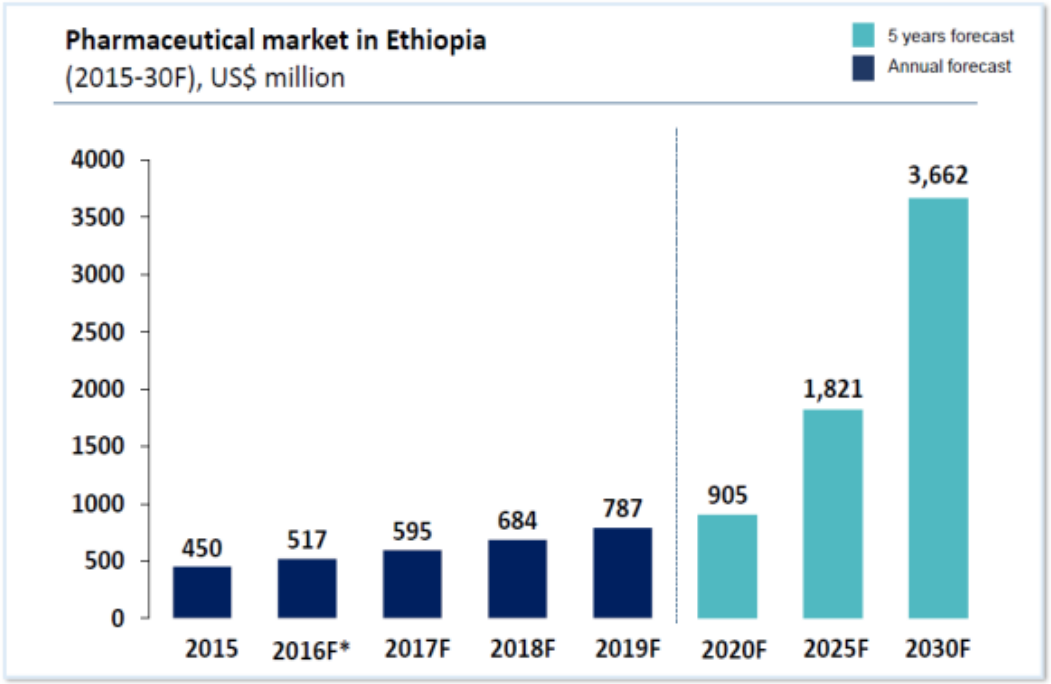


Micro vs Macro Economics

MICROECONOMICS	MACROECONOMICS
Studies individual income	Studies national income
Analyzes demand and supply of labor	Analyzes total employment in the economy
Deals with households and firms decisions	Deals with aggregate decisions
Studies individual prices	Studies overall price level
Analyzes demand and supply of goods	Analyzes aggregate demand and aggregate supply


Microeconomics
Individual markets
Effect on price of a good
Individual labour market
Individual consumer behaviour
Supply of good
Macroeconomics
Whole economy (GDP)
Inflation (general price level)
Employment/unemployment
Aggregate demand (AD)
Productive capacity of economy
www.economicshelp.org

Ethiopian pharmaceutical market has been growing at 15% per year and is predicted to reach $905 million by 2020



Note: *Forecast
Source: Frost & Sullivan, World Bank, National Strategy and Plan of Action for Pharmaceutical Manufacturing

- Local market has been **growing steadily at an average of 15%** per year
- With growing population, **increased access to health services** and a **growing middle-class**, demand is projected to grow exponentially & reach >3.6 billion by 2030
- Ethiopia currently imports **~85% of its pharmaceutical needs** – a big gap that is yet to be fulfilled by manufacturing locally

Activate Windows
Go to Settings to activate Windows.

- http://www.investethiopia.gov.et/images/Covid-19Response/Covid-19Resources/publications_May-20/20191010_Pharmaceutical-Manufacturing-Opportunites-in-Ethiopia_VF.pdf

Fundamental Questions of Economics

What to produce?

- With limited resources, deciding what is needed the most is often a factor in determining what will be produced
- Businesses need to make money…..so they choose products that people want

How should it be produced?

- Technology, labor, capital, etc.
- Getting the lowest cost to make the product
- Will having new technology allow us to lower our expenses?

Whom should it be produced for?

- Who is going to use this product?
- Most goods and services are distributed to individuals through a price system

Summary: The three basic questions in Economics

1. What to produce?
2. How to produce?

Deals with the economic goal of EFFICIENCY

3. For whom to produce?

Deals with the economic goal of EQUITY

Answers Questions

- What determines the level of economic activity in a society?
- In other words, what determines how many goods and services a nation actually produces?
- What determines how many jobs are available in an economy?
- What determines a nation's standard of living?
- What causes the economy to speed up or slow down?
- What causes firms to hire more workers or to lay workers off?
- Finally, what causes the economy to grow over the long term?

1.2. The concept of demand, supply and equilibrium

What is Demand?

- A relation showing the quantities of a good that consumers are willing and able to buy at various prices per period, other things constant.
- Demand is not simply a quantity consumers wish to purchase: individuals must be **willing**, **able**, and **ready** to pay for a commodity if they are to be counted as demanding an item
- Quantity demanded (Q_d): Amount of a good or service consumers are willing and able to purchase during a given period of time, **Ceteris Paribus.**
- price is the major factor that affect demand of an item

Six variables that influence Q_d

1. Price of good or service (P)
2. Incomes of consumers (M)
3. Prices of related goods and services (P_R)
4. Taste patterns of consumers (T)
5. Expected future price of product (P_e)
6. Number of consumers in market (N) $Q_d = f(P, M, P_R, T, P_e N)$

Demand….types of goods

Complement:

- When two *goods* are complements, they experience joint demand.
- Complementary goods are goods/services that are typically used together, for example **keyboard and computers, tennis balls and racket**
- Complement goods – two or more goods which are consumed together

Substitute

- Substitute goods – other goods which satisfy the same wants, or provide same characteristics
- **Coca-Cola and Pepsi**; the interchangeable aspect of these goods is due to the similarity of the purpose they serve, i.e fulfilling customers' desire for a soft drink.

Normal goods – when a person's wages increase, they buy more normal goods

Inferior good – refers to the good's level of demand when wages increase or decrease

Generalized Demand Function

Variable	Relation to Q_d	Sign of Slope Parameter
P	Inverse	$b = \Delta Q_d / \Delta P$ is negative
M	Direct for normal goods Inverse for inferior goods	$c = \Delta Q_d / \Delta M$ is positive $c = \Delta Q_d / \Delta M$ is negative
P_R	Direct for substitutes Inverse for complements	$d = \Delta Q_d / \Delta P_R$ is positive $d = \Delta Q_d / \Delta P_R$ is negative
$\mathfrak{I}$	Direct	$e = \Delta Q_d / \Delta \mathfrak{I}$ is positive
P_e	Direct	$f = \Delta Q_d / \Delta P_e$ is positive
N	Direct	$g = \Delta Q_d / \Delta N$ is positive

Demand Function

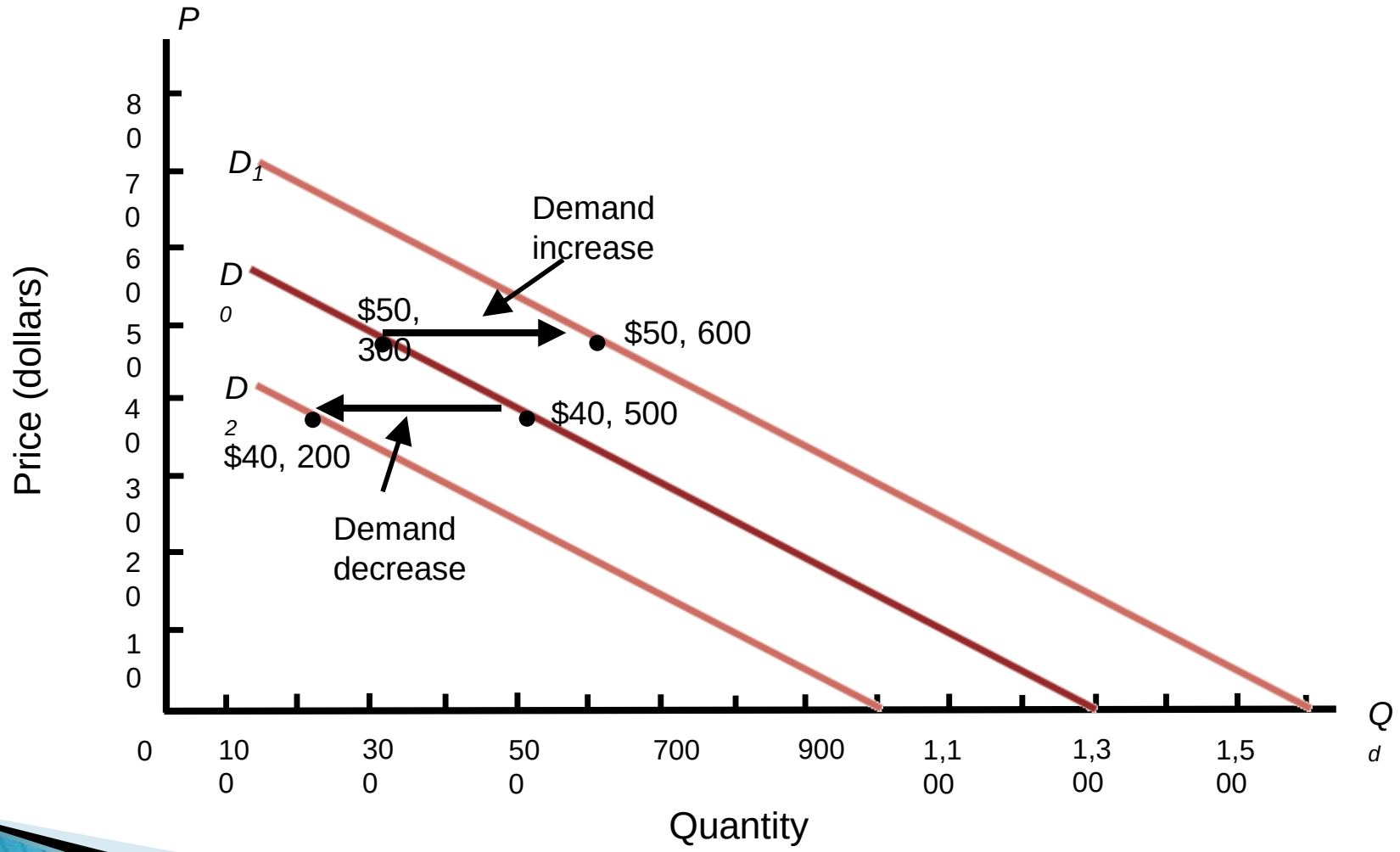
- *Demand function*, or *demand*, shows relation between P & Q_d when all other variables are held constant.
  - $Q_d = f(P)$
  - $Q_d = a - bP$
- Law of Demand
  - Q_d increases when P falls & Q_d decreases when P rises, all else constant
  - $\Delta Q_d / \Delta P$ must be negative

Do consumers of healthcare goods & services respond to these factors in the same manner?

Demand Curves

- By convention, price *(P)* is plotted on the vertical axis & quantity demanded *(Q_d)* is plotted on the horizontal axis
- Change in quantity demanded
  - Occurs when price changes
  - Movement along demand curve
- Change in demand
  - Occurs when one of the other variables, or *determinants of demand*, changes
  - Demand curve shifts rightward or leftward

Shifts in Demand

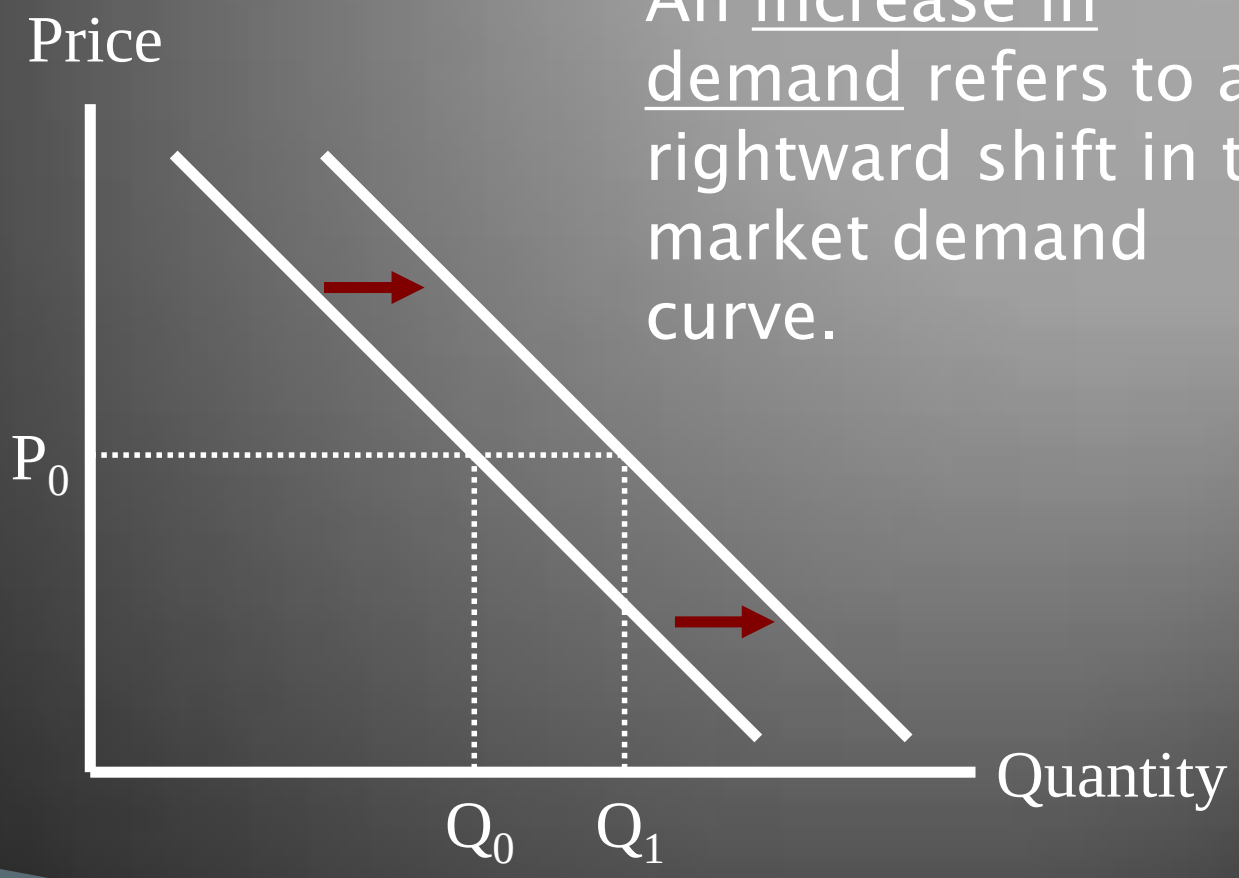


Law of Demand

- A decrease in the price of a good, all other things held constant, will cause an increase in the quantity demanded of the good.

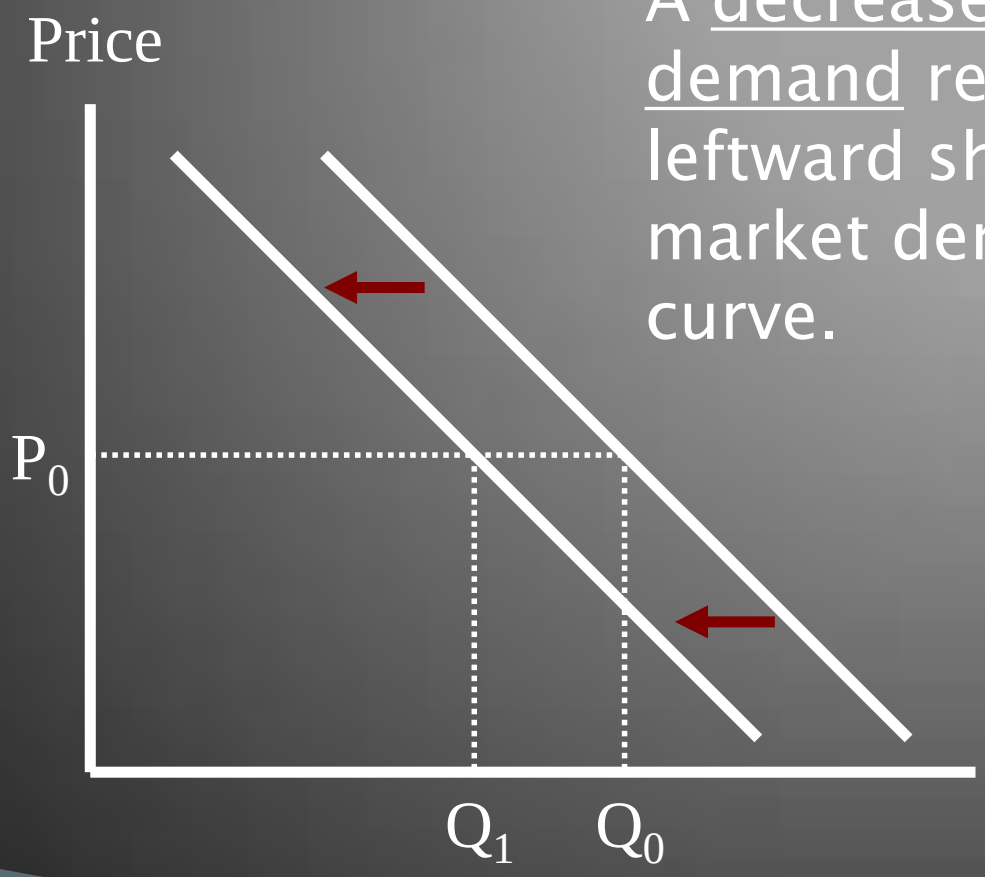
- An increase in the price of a good, all other things held constant, will cause a decrease in the quantity demanded of the good.

Change in Demand



An <u>increase in demand</u> refers to a rightward shift in the market demand curve.

Change in Demand



A <u>decrease in demand</u> refers to a leftward shift in the market demand curve.

What is supply?

Supply

- is the quantity of goods or services that sellers are willing and able to sell at a given price.
- The entire relationship between a price of the commodity and the quantity supplied at various possible prices.
- Price is the major factor that affect quantity supplied

Quantity supplied (Q_s)

- Amount of a good or service sellers are willing to sell at a particular price during a given period of time, Ceteris Paribus.

Six variables that influence Q_s

- Price of good or service (P)
- Input prices (P_I)
- Prices of goods related in production (P_r)
- Technological advances (T)
- Expected future price of product (P_e)
- Number of firms producing product (F)

$$Q_s = f(P, P_I, P_r, T, P_e, F)$$

Generalized Supply Function

Variable	Relation to Q_s	Sign of Slope Parameter
P	Direct	$k = \Delta Q_s/\Delta P$ is positive
P_I	Inverse	$l = \Delta Q_s/\Delta P_I$ is negative
P_r	Inverse for substitutes Direct for complements	$m = \Delta Q_s/\Delta P_r$ is negative $m = \Delta Q_s/\Delta P_r$ is positive
T	Direct	$n = \Delta Q_s/\Delta T$ is positive
P_e	Inverse	$r = \Delta Q_s/\Delta P_e$ is negative
F	Direct	$s = \Delta Q_s/\Delta F$ is positive

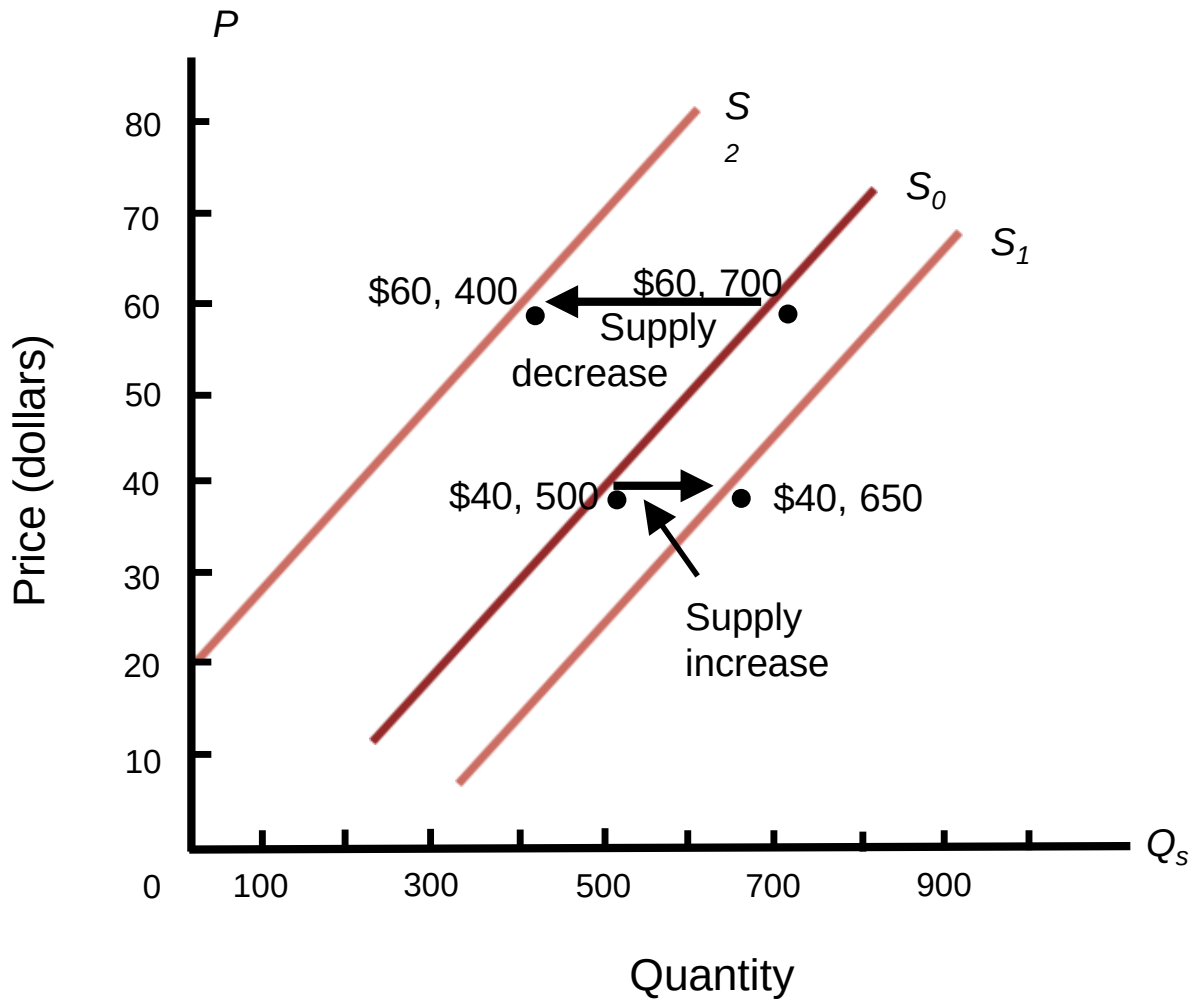
Supply Function

- *Supply function*, or supply, shows relation between P & Q_s when all other variables are held constant.
  - $\boldsymbol{Q_s = g(P)}$
  - $\boldsymbol{Q_s = a + bP}$

Supply Curves

- Change in quantity supplied
  - Occurs when price changes
  - Movement along supply curve
- Change in supply
  - Occurs when one of the other variables, or *determinants of supply*, changes
  - Supply curve shifts rightward or leftward

Shifts in Supply

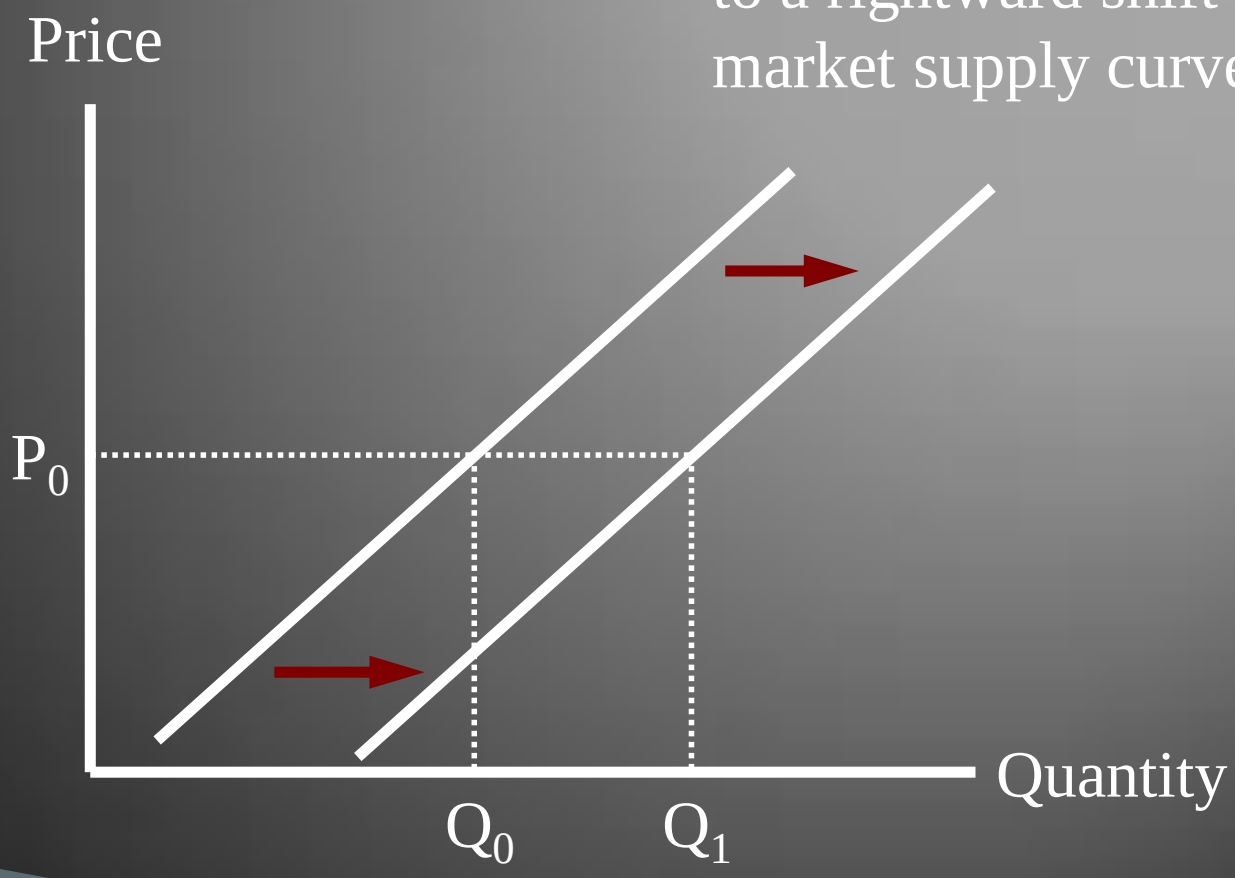


Law of Supply

- A decrease in the price of a good, all other things held constant, will cause a decrease in the quantity supplied of the good.
- An increase in the price of a good, all other things held constant, will cause an increase in the quantity supplied of the good.

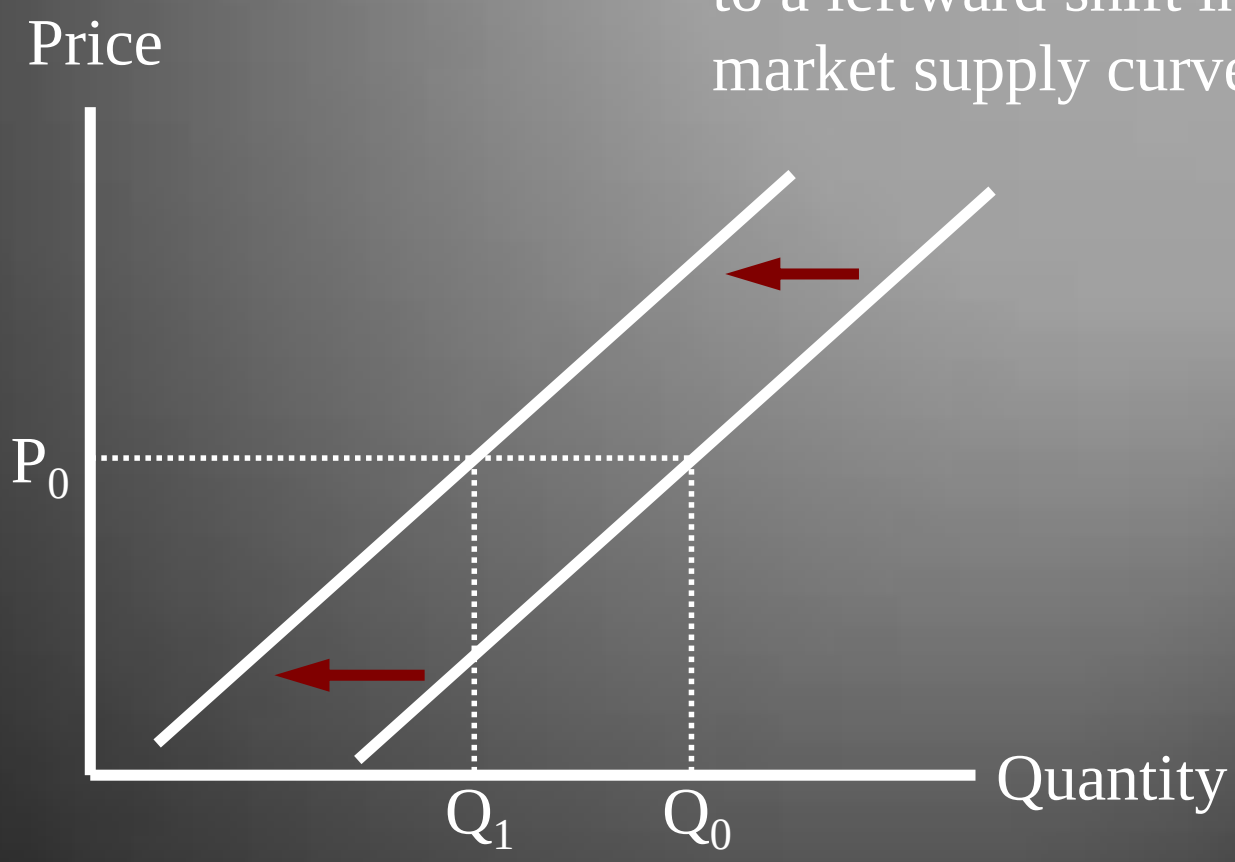
Change in Supply

An increase in supply refers to a rightward shift in the market supply curve.



Change in Supply

A decrease in supply refers to a leftward shift in the market supply curve.

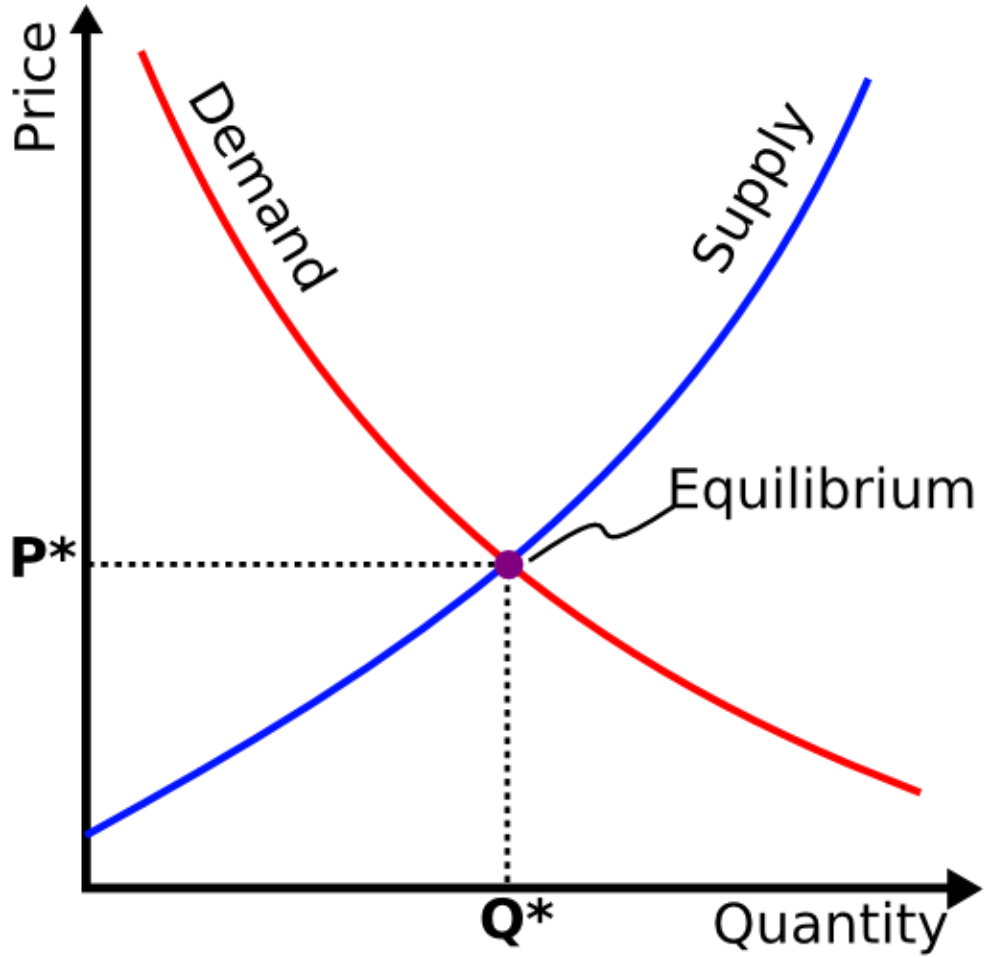


Market Equilibrium

- Equilibrium price and quantity are determined by the intersection of demand & supply curves.
  - At the point of intersection, $Q_d = Q_s$
  - Consumers can purchase all they want & producers can sell all they want at the "market-clearing" price.
- At market equilibrium: the amount that buyers wish to buy is just equal to the amount that sellers wish supply
  - there is no shortage
  - there is no surplus

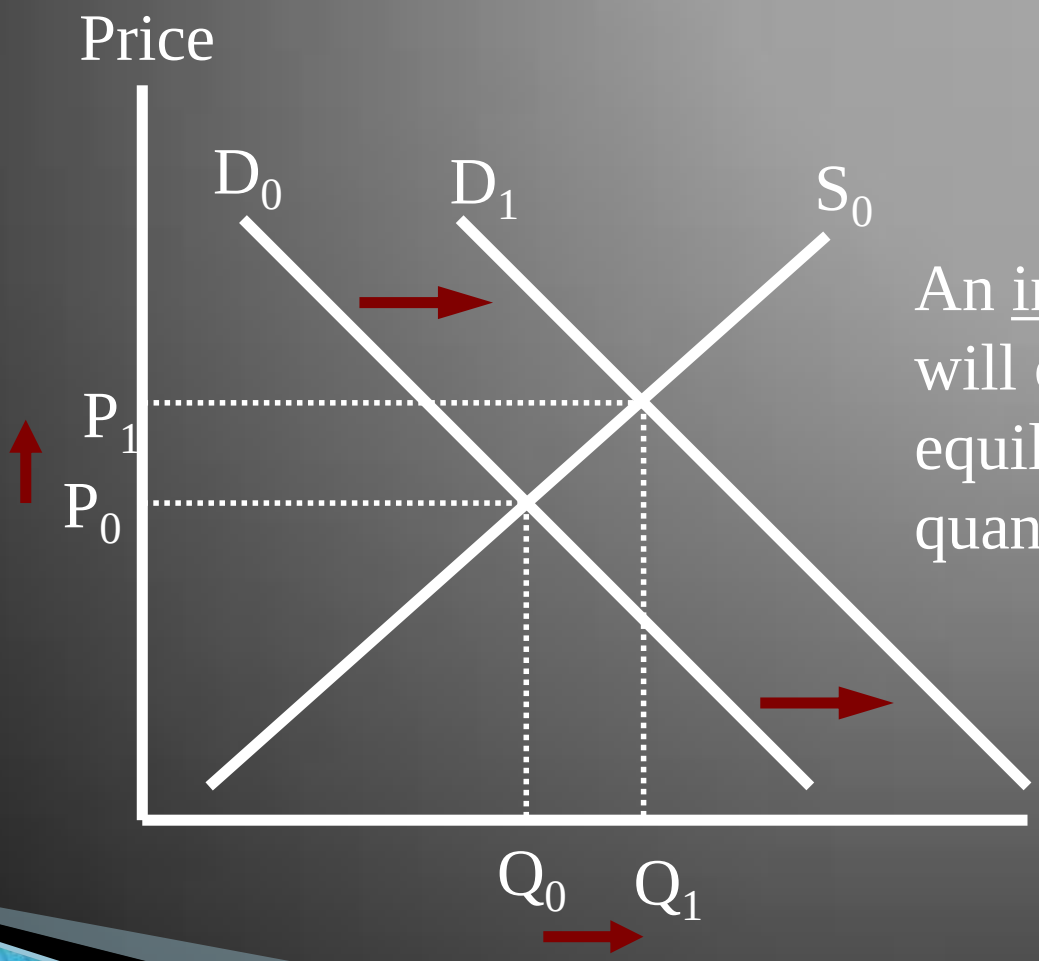
Market Equilibrium

- Market equilibrium is determined at the intersection of the market demand curve and the market supply curve.
- The equilibrium price causes quantity demanded to be equal to quantity supplied.
- There is only one price at which the quantity of goods or services people want to buy (Qd) is the same as the quantity suppliers want to sell (Qs)



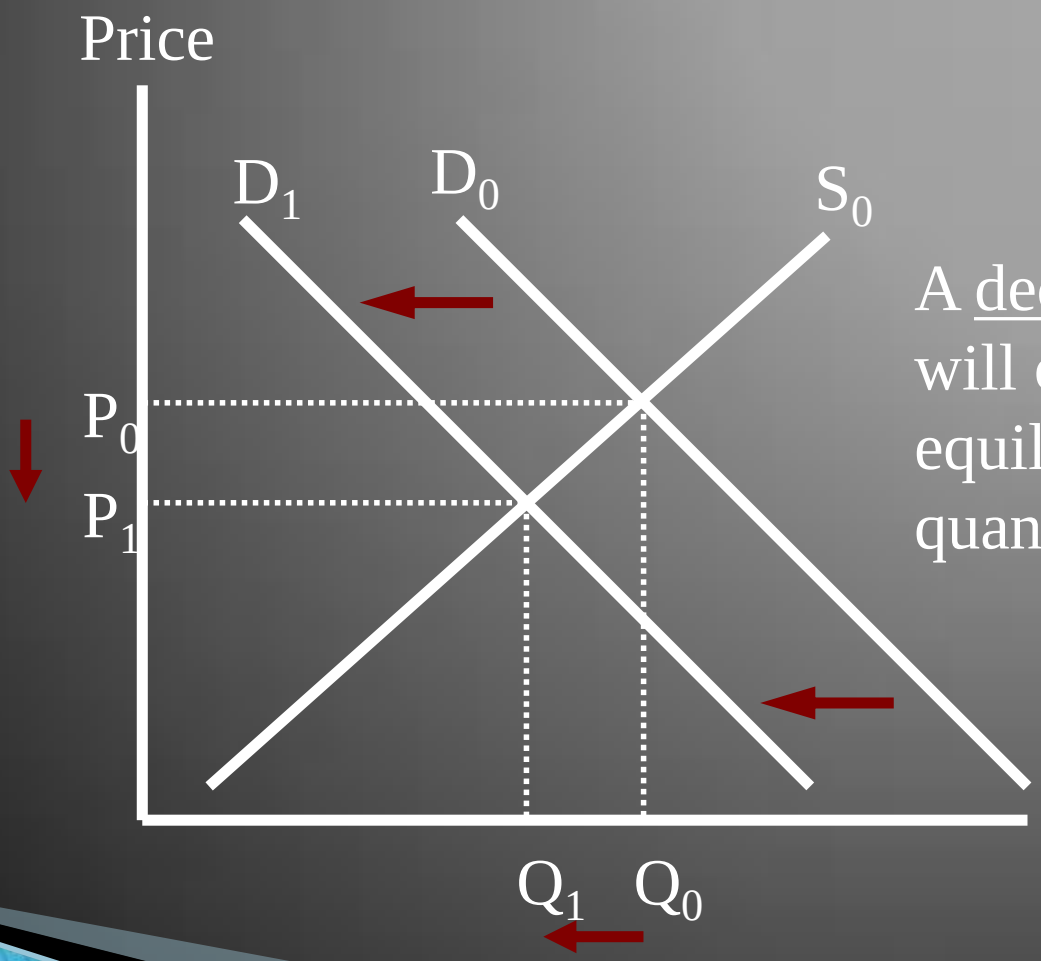
Is it possible to attain market equilibrium in health care market?

Market Equilibrium



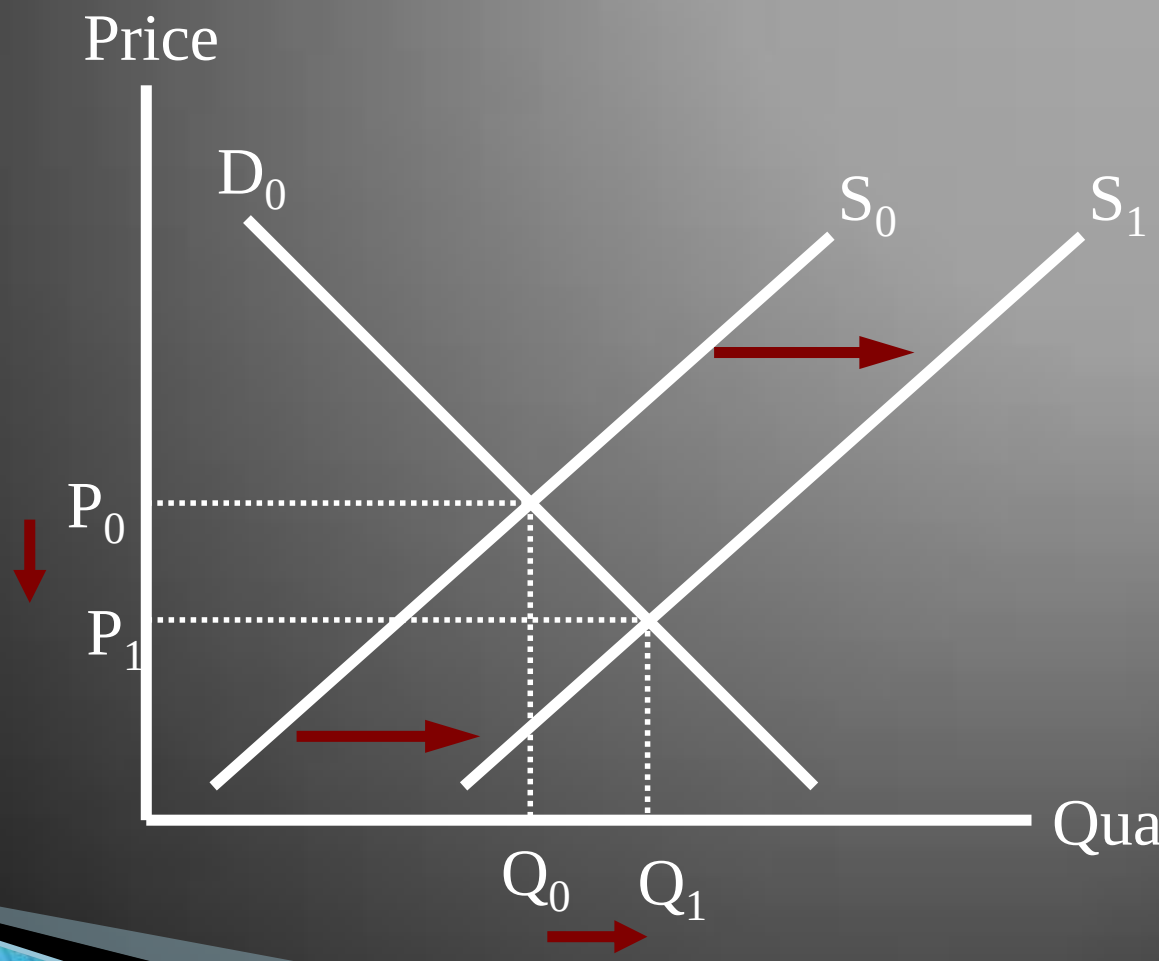
An <u>increase in demand</u> will cause the market equilibrium price and quantity to increase.

Market Equilibrium



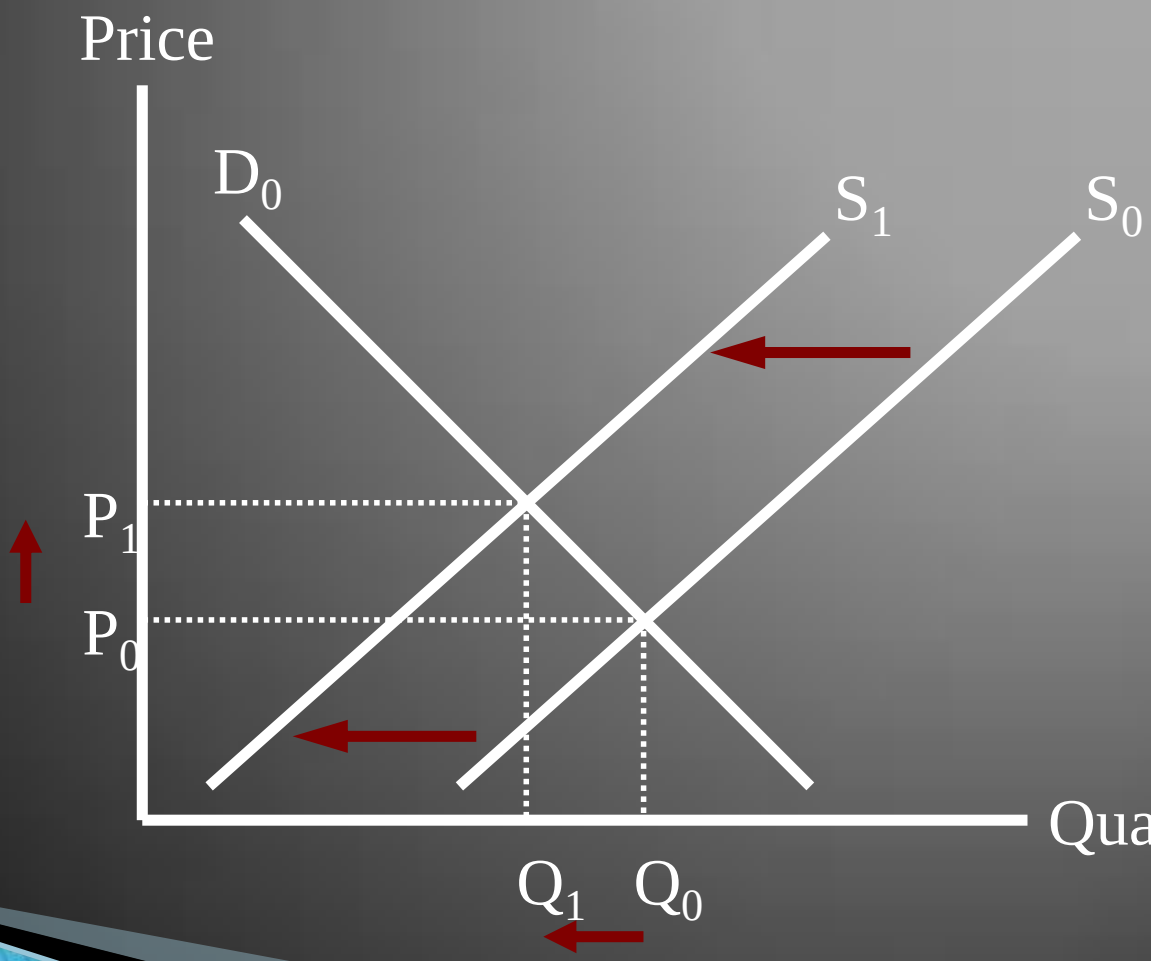
A <u>decrease in demand</u> will cause the market equilibrium price and quantity to decrease.

Market Equilibrium



An <u>increase in supply</u> will cause the market equilibrium price to decrease and quantity to increase.

Market Equilibrium



A <u>decrease in supply</u> will cause the market equilibrium price to increase and quantity to decrease.

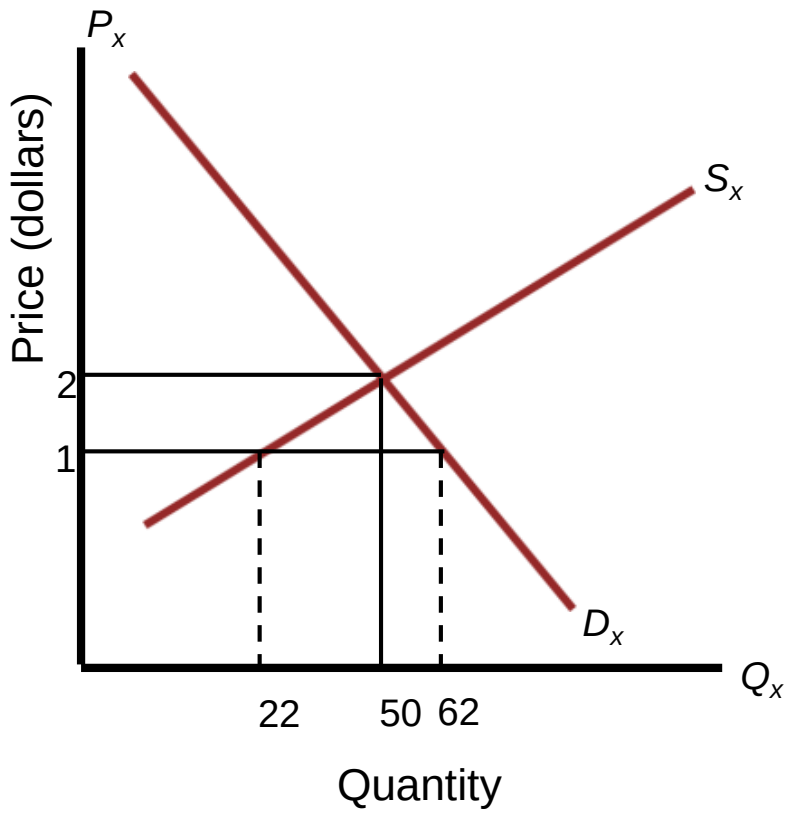
Market Failure

a situation where quantity demanded ≠ quantity supplied
– healthcare and market failure??

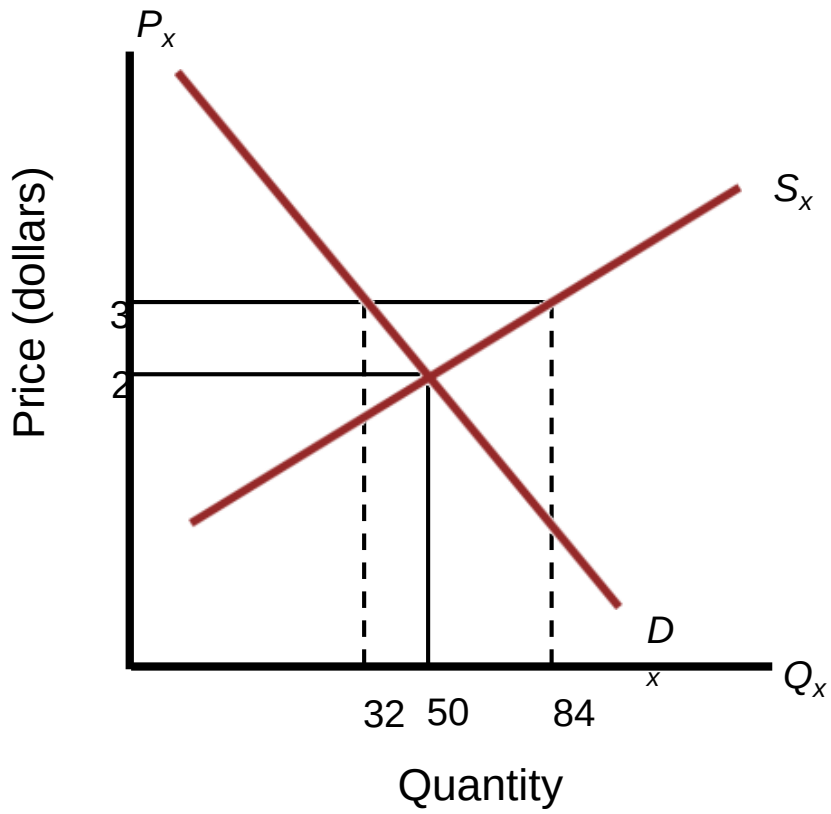
Ceiling & Floor Prices

- Ceiling price
  - *Maximum* price government permits sellers to charge for a good
  - When ceiling price is below equilibrium, a *shortage* occurs
- Floor price
  - *Minimum* price government permits sellers to charge for a good
  - When floor price is above equilibrium, a *surplus* occurs

Ceiling & Floor Prices



Panel A – Ceiling price



Panel B – Floor price

Exercises:

- **Exercise 1:** Suppose that the total market demand for a product comprises the demand of three individuals with identical demand equations.

$$Q_{D,1} = Q_{D,2} = Q_{D,3} = 50 - 25P$$

- What is the market demand equation for this product?

Exercise 2:

- The market demand and supply equations for a product are

$$Q\mathrm{D} = 25 - 3P$$

$$Q\mathrm{S} = 10 + 2P$$

- Where Q is quantity and P is price. What are the equilibrium price and quantity for this product?

Exercise 3:

- The market demand and supply equations for a product are

$$QS = 100 + 5P$$
$$QD = 300 - 3P$$

where Q is quantity and P is price.

a. What are the equilibrium price and quantity for this product?

b. Suppose that an increase in consumer income resulted in the new demand equation

$$QD = 420 - 3P$$

- What are the new equilibrium price and quantity for this product?

c. Suppose the government enacts legislation that imposes a price ceiling equivalent to the original equilibrium price. What is the result of this legislation?

Exercise 4:

- Consider the following demand and supply equations for the product of a perfectly competitive industry:

$$QS = 10 + 2P$$
$$QD = 25 - 3P$$

- a. Determine the market equilibrium price and quantity algebraically.
- b. Suppose that government regulatory authorities imposed a "price floor" on this product of $P = \$4$. What would be the quantity supplied and quantity demanded of this product? How would you characterize the situation in this market?

Exercise 5 (see questions in next slide

Price per kg	Quantity demanded	Quantity supplied
$0	6	0
1	5	1
2	4	2
3	3	3
4	2	4
5	1	5
6	0	6

Exercise 5…

1. Draw the demand and supply curves for corn. What is the equilibrium price? The equilibrium quantity?
2. Suppose the government now imposes a price floor at $4 per bushel. Show the effect of this program graphically. How large is the surplus of corn?
3. With the price floor, how much do farmers receive for their corn? How much would they have received if there were no price floor?
4. If the government buys all the surplus wheat, how much will it spend?

1.3. The market, Setting price, Structure and failure

- *Marketing* is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders.
- *Marketing Management* deals with identifying and meeting human and social needs.

Market cont'd

- **Market** is a place **where demand and supply adjust through price**
  - It can be seen as a tool or mechanism for allocating resources in a society
- **Market failure** is all the ways in which a specific market may not meet the conditions for social optimality
  - E.g., if there are **barriers to entry**, or **a lack of information**, then that market will fail to produce the best possible outcome

Price and Competition

- **Price competition**
- Is a policy whereby marketers emphasises price as an issue and matches or beats the prices of competitors

- **Non-price competition**
- Is a policy in which a seller elects not to focus on price but to emphasis other factors instead.

Non-Price Competition

Non price competition is done in the following ways:

- Reinforcing the quality image of the product
- Reinforcing the desirability of the product benefits
- Using extended warranty to help customers think they are getting more for their money
- Emphasise the longer term cost saving derived from using this product with the cheaper competition
- Customer loyalty cards
- Incentives for purchasing off-peak, or out of season
- Internet shopping
- Home delivery systems

Internal influences on pricing

- **Organisational objectives**–the role pricing can play in achieving long and short-term corporate objectives
- **Marketing objectives**–long & short term marketing objectives; price & product positioning
- **Costs** –the relationship between price and cost; balancing the need to cover costs against the price the market will bear

External influences on pricing

- **Customers and consumers**: demand & elasticity; price sensitivity
- **Channels of distribution**: need to cover costs, value added to products; desired margins
- **Competitors**: pricing under different market structures
- **Legal and regulatory**: freedom to set prices, unfair pricing practices: sales taxes, VAT and their impact on prices

Pricing Methods

- **Cost-based pricing** -prices set mainly on the basis of cost (fixed & variable overheads)
- **Competition-based pricing** -pricing a product or service at a price comparable with that charged by the competition (this could be slightly higher or lower than the competition)
- **Customer-based pricing** -relies on the perceived value and how much customers are prepared to pay for the product or service

Two generic pricing strategies for new products

Skimming Policy

- Price skimming involves charging a relatively high price for a short time where a new, innovative, or much-improved product is launched onto a market
- A major disadvantage is that it encourages new entrants·

Penetration Policy

- Penetration pricing involves the setting of lower, rather than higher prices in order to achieve a large, if not dominant market share.
- This strategy is most often used in businesses wishing to enter a new market or build on a relatively small market share.
- A successful penetration pricing strategy may lead to large sales volumes/market shares and therefore lower costs per unit.

Market Structure

- Market structure refers to the behavior of buyers and sellers in a particular market.
- Market structure is classified based on
  - The size and relative size of buyers and sellers
  - The ease of entry and exit from the market
  - The extent of product differentiation
  - The extent of knowledge and mobility of resources

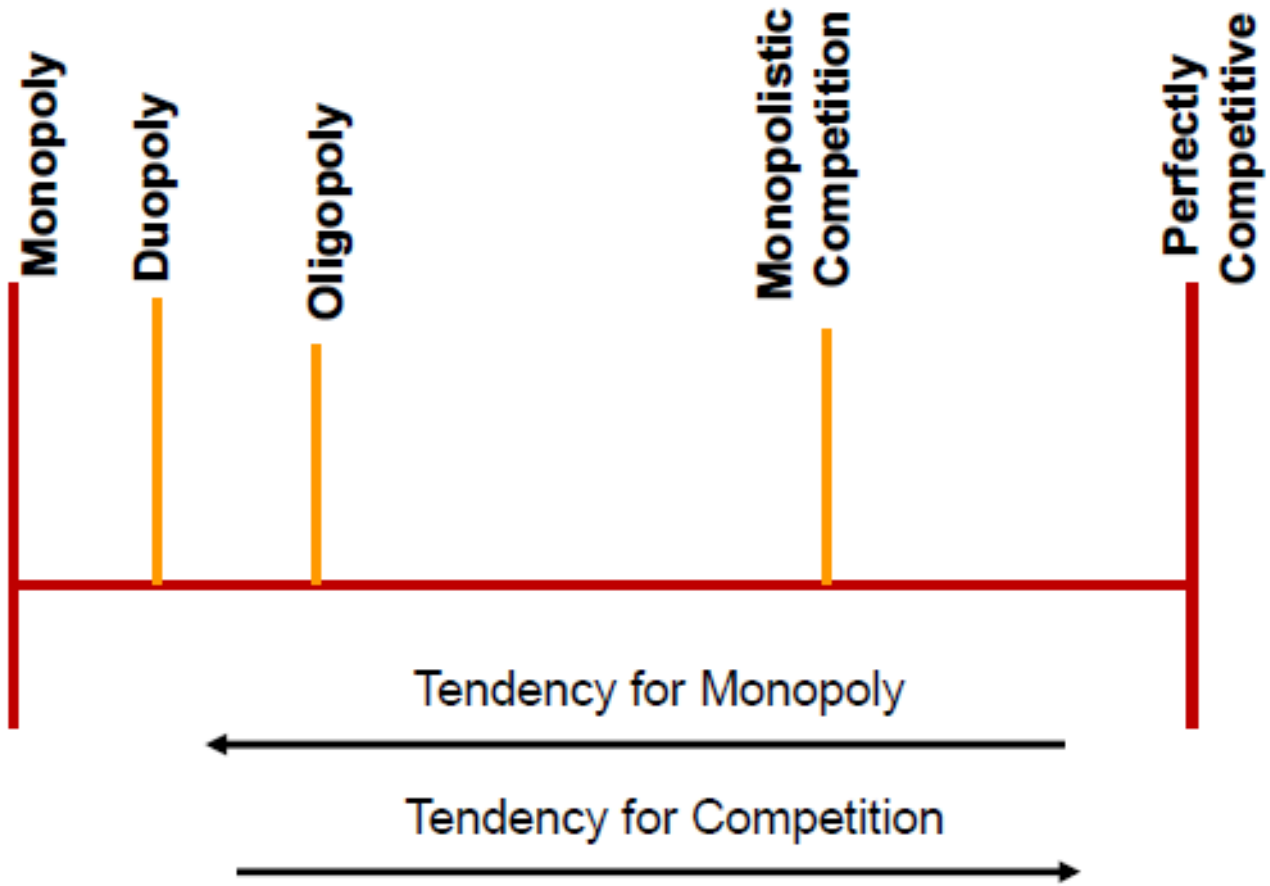
Market Structure…

- There are different forms of market.
- The two extremes are:
  - Perfectly competitive Market
  - Monopolistic Market

Market Structure [3]

Buyers / Sellers	Many	Few	One
Many	Perfect Competition	Oligopsony	Monopsony
Few	Oligopoly	Bilateral Oligopoly	
One	Monopoly		Bilateral Monopoly

Market Structure [4]



Market Structure [5]

- Characteristics of **perfectly competitive** market:
  - Many buyers and sellers in the market
  - Free entry and exit
  - Homogenous product
  - Perfect knowledge and perfect resource mobility
  - No one firm has ability to influence price and quantity due to fierce competition (price takers)

Market Structure [6]

- Monopolistic Competition Market:
  - Arise when there are many producers in the market each selling a differentiated product.
  - This market is characterized by:
    - Relatively many buyers and sellers
    - No limitation for entry
    - Differentiated products that are close substitutes
    - Has limited influence on the price of the good

Market Structure [7]

- Characteristics of *Oligopoly/Oligopsony* market:
  - There are a few sellers/buyers
  - Some limitation to entry
  - Some influence on market supply and demand
  - Product can be homogenous as in oil industry or differentiated as in auto industry.

Market Structure [8]

- Characteristics of *Monopoly/Monopsony* market:
  - One buyer or seller
  - No entry
  - Product has no close substitute
  - Considerable control over market price and supply
  - A monopolist is price maker

Conditions for Perfect Market

- **Perfect information:** Symmetric
- **'Rational' behavior**
  - Incorporating both individual and societal costs/benefits
- **Market exists**
  - For all products desired by all people
- **Many buyers and sellers exist for homogenous products:** So each is price taker
- **Equity or politics not considered**

Market failure

- *Market failure* occurs when the market fails to allocate resources efficiently.
- Market failure can be viewed as a scenario in which individuals' pursuit of self-interest leads to bad results for society as a whole
- When the market fails (breaks down) government can intervene to promote efficiency and equity.

Market Failure continued…

- Failure of Competitive Markets, happens:
  - Market Power
  - Incomplete Information
  - Externalities
  - Goods are differentiated
  - Public Goods

1. Market Power

- The abuse of MARKET POWER, which can occur whenever a single buyer or seller can exert significant influence over PRICES or OUTPUT
- Either monopolistic (or oligopolistic) or monopsonistic (Oligopsonistic) power
- Effect is for production at lower level than society truly desires
- Price is set above (or in the case of monopsony, below) marginal cost

2. Incomplete (Imperfect) Information

- usually implies that one party holds perfect or near perfect information and the other does not
- Imperfect information is probably the least described (to the public) and most important reason for the failure of health care markets
- Even the providers of health care have little understanding of the value of what they provide
    - Medical science , as practiced, is very new
    - Eg ASA; Thalidomide
- How can the consumer be expected to know better when the physician, etc. does not know?

3. Externalities

- ***Externality*** refers to the uncompensated impact of one person's actions on the well-being of a bystander.
- Externalities cause markets to be inefficient, and thus fail to maximize total surplus.
- An externality arises.... . . when a person engages in an activity that influences the well-being of a bystander and yet neither pays nor receives any compensation for that effect.

Externalities and market inefficiency….

- When the impact on the bystander is adverse, the externality is called a ***negative externality***.
  - Automobile/ factory exhaust
  - Improper use of pesticides
  - Cigarette smoking
  - Loud stereos in an apartment building

Externalities and market inefficiency….

- When the impact on the bystander is beneficial, the externality is called a ***positive externality***.
  - Vaccinations and herd immunity
  - Restored historic buildings
  - Research into new technologies

Externalities and market inefficiency….

- Negative externalities lead markets to produce a larger quantity than is socially desirable.
- Positive externalities lead markets to produce a smaller quantity than is socially desirable.

3. Product Differentiation

- A business level strategy intended to:
  - increase the perceived value of the focal firm's products and/or services relative to the value of competitor's products and/or services.
  - create a customer preference for the focal firm's products and/or services

Bases of Differentiation

A base of differentiation must fill some customer need:

- image
- hunger
- comfort
- cleanliness
- beauty
- status
- style
- taste
- safety
- quality
- service
- accuracy
- furthering a cause
- reliability in use
- nostalgia
- belonging

A differentiated product fills one or more needs better than the products of competitors

Bases of Differentiation

Almost anything can be a base of differentiation

- the wide range of customer needs can be filled by a wide range of bases of differentiation
  - tangible thing (product features, location, etc.)
  - intangible concept (reputation, a cause, an ideal, etc.)
  - limited only by managerial creativity

Example: Amoxicillin capsules and tablets

Bases of Differentiation

Three Categories

1) Product Attributes
    - exploiting the actual product

2) Firm—Customer Relationships
    - exploiting relationships with customers

3) Firm Linkages
    - exploiting relationships within the firm and/or relationships with other firms

5. Public Goods and Common Resources

- **Free goods provide a special challenge for economic analysis.**
  Most goods in our economy are allocated in markets…
- When goods are available free of charge, the market forces that normally allocate resources in our economy are absent.
- When a good does not have a price attached to it, private markets cannot ensure that the good is produced and consumed in the proper amounts.

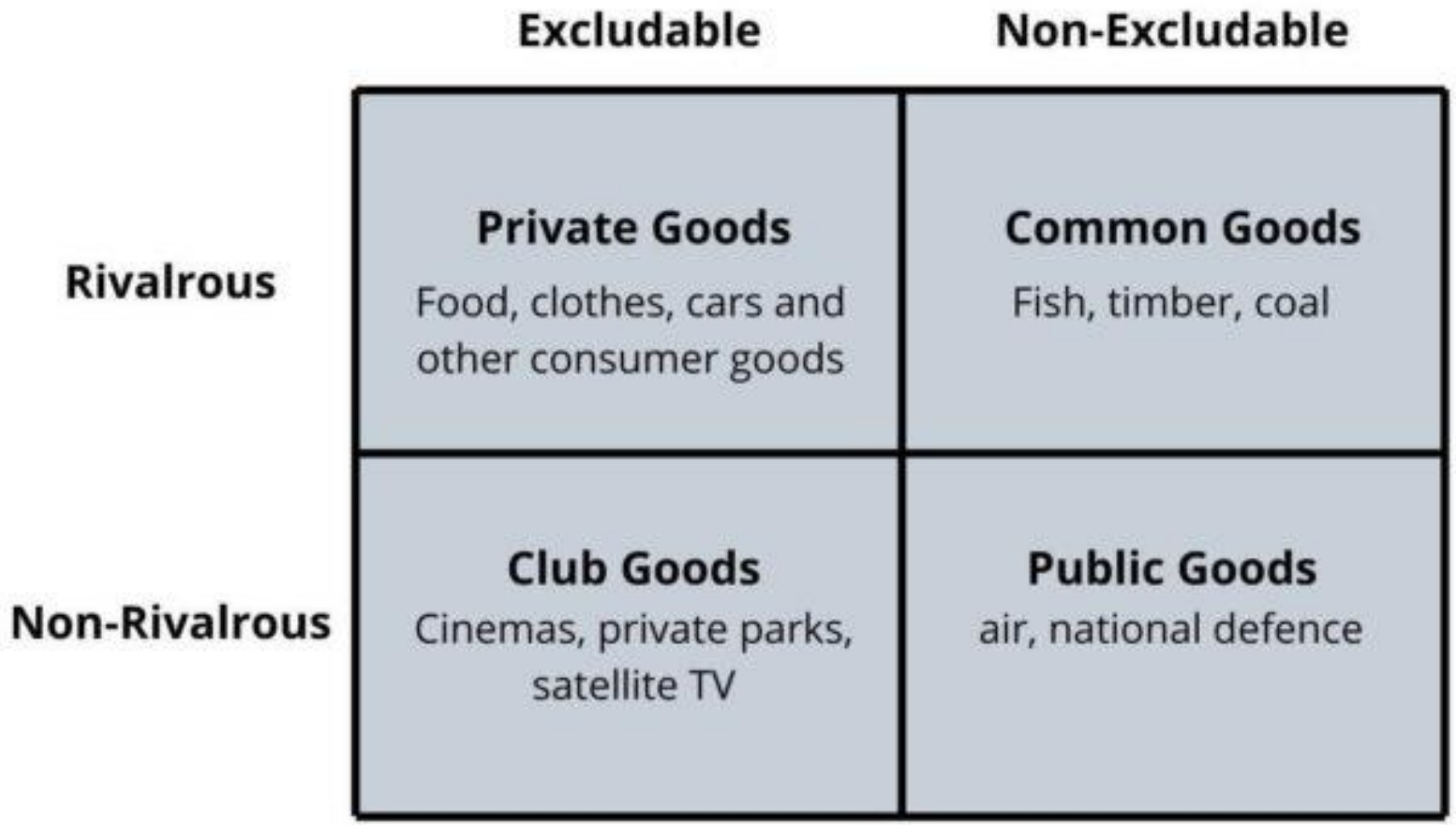
Different kinds of goods

- Four Types of Goods
  - *Private Goods:* Goods that are both excludable and rival in consumption
  - *Public Goods:* Goods that are neither excludable nor rival in consumption
  - *Common Resources:* Goods that are rival in consumption but not excludable
  - *Natural Monopolies:* Goods that are excludable but not rival in consumption

Excludable and rivalries

- **Excludable** – goods possible to prevent consumers who have not paid for it from accessing. One consumption affect another
- **Rivalries** – goods whose consumption by one consumer prevents others from not using simultaneously

Types of Economics Goods



Common resources

- Common resources, like public goods, are not excludable. They are available free of charge to anyone who wishes to use them.
- Common resources are rival goods because one person's use of the common resource reduces other people's use.

1.4. SCARCITY, SOCIETY AND CHOICE

Concepts and Themes

- Economic Agents;
- Scarce Resources;
- Choice;
- Specialization;
- Exchange; and
- Economic Systems

Economic Agents

- **Economic agents** are those individuals and organizations that engage in production, exchange, specialization, and consumption.
- They can be individuals in households, businesses, nonprofit organizations or governments.

Scarce Resources

- **Scarce resources** are land and natural resources, labor, and capital resources the demands for which exceed the supply if they were given it away free.
- **Resources** are the land and natural assets, labor, and capital (plants, equipment, and inventories) that can be combined to produce goods and services.
- They are also called **the factors of production**.
- They present economic wealth because they ultimately determine how much output we can produce.
- Land (farmland to garbage dump); Capital (hydroelectric dam to a plow); Labor (skilled surgeon to ditch-digger)

Scarce Resources cont.

- **Scarcity** exists when the amount of the good or resource offered is less than what users would want if it were given away free.
- ***Scarcity has little to do with wealth or poverty; it exists in both rich and poor communities.***
- **Free** or non scarce goods such as natural resources: oxygen and Sun's rays are available in abundance.

Choice

- Scarcity forces economic agents to make choices.
- The factors of production are limited; we cannot produce infinite quantities of goods and services.
- Households, businesses, and governments must make economic choices among scarce resources.

Specialization and Exchange

- **Specialization** is the use of resources to their best advantage.
- People specialize in law/medicine, farmland used for corn/wheat, United States builds commercial aircrafts, etc.
- They increase they material well-being by doing what they do relatively better then others can.
- specialization and exchange are the sources of economic prosperity.
- (Specialization and Toyota's Just-in-time Manufacturing example)

Specialization and Exchange – cont.

- Specialization dictates exchange.
- **Exchange** is the trading of goods and services produced through specialization.
- Without exchange, specialization would be of no benefit because economic agents would be left only with their own goods.
- Specialization and exchange raise material well-being.

Economic Systems

- To function effectively society must make choices in an orderly fashion.
- Different societies use different institutions to make their economic choices.
- The set of organizational arrangements and institutions that are established to deal with scarcity are called an **economic system**.

Economic Systems – cont.

- Different economic systems:
  - Under **capitalism**, resources are privately owned and people make their own economic decisions;
  - Under **socialism**, the state owns the resources and makes the decisions.
- Most economies are mixed ownership systems in which the government owns some of the resources and the rest are owned privately.

Limited Resources versus Unlimited Wants Of the Society

- The imbalance between limited resources and unlimited wants is the source of the economic problem.
- Resources are scarce, we must choose ***what*** products to produce, ***how*** these products are to be produced, and ***for whom***.
- **Wants** are the goods and services we would wish to have if there were no costs (if the prize were zero).
- The **law of scarcity** states that wants will always exceed our ability to meet them.
- There will never be enough resources – need to make choices.

Positive versus Normative Economics

- Economics deals with both what *is* and what *should be*.
- **Positive economics** studies what ***is*** in the economy.
- Positive economics seeks to formulate and test theories that explain relationships among economic factors.
- **Normative economics** deals with the way the economic world ***should be***.

1.5. Principles of Economy

Ten Principles of Economics

- Principle #1: People Face Trade-offs.
- Principle #2: The Cost of Something Is What You Give Up to Get It.
- Principle #3: Rational people think at the margin
- Principle #4: People Respond to Incentives
- Principle #5: Trade Can Make Everyone Better Off
- Principle #6: Markets Are Usually a Good Way to Organize Economic Activity
- Principle #7: Governments Can Sometimes Improve Market Outcomes
- Principle #8: The Standard of Living Depends on a Country's Production.
- Principle #9: Prices Rise When the Government Prints Too Much Money.
- Principle #10: Society Faces a Short-run Tradeoff Between Inflation & Unemployment

Categories of Basic Principles of Economics

How do people make decisions?	How do people interact?	The forces and trends that affect how the economy as a whole works
1. People face tradeoffs 2. The cost of something is what you give up to get it 3. Rational people think at the margin 4. People respond to incentives	5. Trade can make everyone better off 6. Markets are usually a good way to organize economic activity 7. Governments can sometimes improve economic outcomes	8. The standard of living depends on a country's production. 9. Prices rise when the government prints too much money. 10. Society faces a short-run tradeoff between inflation and unemployment.

Principle #1: People Face Trade-offs.

- To get one thing, we usually give up another thing that we like.
  - Food v. clothing
  - Efficiency v. equity
  - Clean environment v. a high levels of income
  - Leisure time v. work

Efficiency Vs Equity

- **Efficiency** evaluates whether healthcare resources are used to achieve a desired outcome. It has a number of different aspects (***Reading assingmnt***)
  - Allocate Efficiency
  - Technical efficiency
  - Cost-efficiency
- **Equity** means the benefits of those resources are distributed fairly among the members of society. The same access to health or health care opportunities for people in the same situation

Principle #2: The Cost of Something Is What You Give Up to Get It.

- Decisions require comparing costs and benefits of alternatives.
  - Whether to go to college or to work?
  - Whether to study or go out on a date?
  - Whether to go to class or sleep in?
- The opportunity cost of an item is what you give up to obtain that item

Principle #3: Rational people think at the margin

- Rational people = those who systematically & purposefully do the best they can to achieve their objectives
- Economists normally assume that people are rational
- Rational people systematically & purposefully do the best they can to achieve their objectives, given the opportunities they have
- Rational people often make decisions by comparing marginal benefits and marginal costs
- **Marginal changes** are small, incremental adjustments to an existing plan of action
  - Marginal is the economic term for “extra”

Principle #4: People Respond to Incentives

- An **incentive is something** (such as the prospect of a punishment or a reward) that induces a person to act

- Marginal changes in costs or benefits motivate people to respond.

- The decision to choose one alternative over another occurs when that alternative's marginal benefits exceed its marginal costs!

Principle #4: People Respond to Incentives….

- B/c rational people make decisions by weighing costs & benefits, their decisions may change in response to incentives.

➔When the price of a good rises, consumers will buy less of it b/c its cost has risen

➔When the price of a good rises, producers will allocate more resources to the production of the good b/c the benefit from producing the good has risen

Principle #4: People Respond to Incentives……

Many public policies change the costs & benefits that people face

Sometimes policymakers fail to understand how policies alter incentives and behavior

- Example: Seat belt laws ↑ the use of seat belts & lower the incentives of individuals to drive safely

- Seat belts reduce the benefits of slow & careful driving

➔This leads to an ↑in the number of car accidents

➔This also leads to an ↑ed risk for pedestrians

How people interact
Principle #5: Trade Can Make Everyone Better Off

- People gain from their ability to trade with one another.
- Competition results in gains from trading.
- Trade allows people to specialize in what they do best.

Principle #6: Markets Are Usually a Good Way to Organize Economic Activity

- A market economy is an economy that allocates resources through the decentralized decisions of many firms and households as they interact in markets for goods and services
  - Households decide what to buy and who to work for.
  - Firms decide who to hire and what to produce.

Principle #6: Markets Are Usually a Good Way to Organize Economic Activity…

- Adam Smith made the observation that households and firms interacting in markets act as if guided by an “invisible hand.”
  - Because households and firms look at prices when deciding what to buy and sell, they unknowingly take into account the social costs of their actions.
  - As a result, prices guide decision makers to reach outcomes that tend to maximize the welfare of society as a whole.

Principle #7: Governments Can Sometimes Improve Market Outcomes

- Market failure occurs when the market fails to allocate resources efficiently.
- When the market fails (breaks down) government can intervene to promote efficiency and equity.

Principle #8: The Standard of Living Depends on a Country's Production.

- Standard of living may be measured in different ways:
  - By comparing personal incomes.
  - By comparing the total market value of a nation's production
- Almost all variations in living standards are explained by differences in countries' productivities.
  - Productivity is the amount of goods and services produced from each hour of a worker's time.

Principle #9: Prices Rise When the Government Prints Too Much Money.

- Inflation is an increase in the overall level of prices in the economy.
- One cause of inflation is the growth in the quantity of money.
- When the government creates large quantities of money, the value of the money falls.

Principle #10: Society Faces a Short-run Tradeoff Between Inflation & Unemployment

- The Phillips Curve illustrates the tradeoff between inflation and unemployment:

  ⇩ Inflation ⇨ ⇧ Unemployment

  - It's a short-run tradeoff!
  - The theory claims that with economic growth comes, inflation that leads to more jobs and less unemployment

End of Chapter 1

Thank you!